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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/833,868 | 04/12/2001 | Jori Arrakoski | NC30307 | 5180 |
| 30973 | 7590 | 11/10/2004 | EXAMINER | |
| SCHEEF & STONE, L.L.P. 5956 SHERRY LANE SUITE 1400 DALLAS, TX 75225 | | | CHANG, RICHARD | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2663 | |

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/833,868 | Applicant(s) ARRAKOSKI ET AL. | |
| | Examiner Richard Chang | Art Unit 2663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 5-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 10, 12 and 14 are objected to because of the following informalities:

Regarding to Claim 10, there is a mistyped term "LOS (line of sigh)" (claim 10, lines 2-3) in the claim 10. This should be corrected as "LOS (line of sight)" to be consistent with the disclosure in the specification.

Regarding to Claim 12, there are two mistyped words "tot" (claim 12, line 7) and "dissim" (claim 12, line 9) in the claim 12. These two words should be corrected as "to" and "dissimilar" respectively.

Regarding to Claim 14, there is a mistyped term "LOS (line of sigh)" (claim 14, line 3) in the claim 14. This should be corrected as "LOS (line of sight)" to be consistent with the disclosure in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 18-20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US patent No. 6,349,091 ("Li").

Regarding claims 1 and 20, Li teaches a two-tier wireless network (2 as a wireless access network for providing radio communication of data) (See Fig. 1A) comprising means and steps of

forming a cluster (12) as the first tier of network (2) (a first-tier mesh) of a plurality of nodes (10) and within a cluster (12) the cluster head (14) (each of the first-tier nodes of the plurality of first-tier nodes) is capable of communicating data with member nodes (at least selected others of the first-tier nodes) wherein one of those cluster member nodes designated as a cluster head node (14) (at least one of the first-tier nodes forming a first-tier sink node) (See Fig. 1A, Col 4, lines 1-9),

forming a backbone network (16) as the second tier of network (2) (at least a second-tier mesh) of a plurality of the head nodes (14) of different clusters (12) (a plurality of second-tier nodes) and within a backbone network (16) the head nodes (14) of different clusters (12) (each of the second-tier nodes of the plurality of second-tier nodes) is capable of communicating data with each other (at least selected others of the second-tier nodes),

providing dynamic selection of cluster head nodes within the backbone network (16) (at least one of the second-tier nodes forming a second-tier sink node),

facilitating communications between nodes (14) of different clusters (12) in the backbone network (16) (the second-tier sink node further capable of communicating with the first-tier sink node of said first-tier mesh) (See Fig. 1A, Col 4, lines 9-20).

Regarding claim 2, Li further teaches that a two-tier wireless network (2) employs an intranet protocol for communications within the two-tier network. It is inherently that

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the cluster (12) members (10) (the first-tier nodes of said first-tier mesh) have operational characteristics suitable to the local range node communication (operable pursuant to first-tier-mesh operational characteristics) and the nodes (14) of the backbone network (16) (the second-tier nodes of said second-tier mesh) have operational characteristics suitable to the long range cluster communication (operational pursuant to second-tier-mesh operation characteristics), and these operation characteristics are not the same (the first-tier-mesh operational characteristics ..., dissimilar) (See Fig. 1A, Col 4, lines 17-20).

Regarding claim 3, Li further teaches that the communication within a cluster (12) (the first-tier-mesh operation characteristics) utilizes a first transmission frequency (See Fig. 1A, Col 4, lines 5-8) and the communication within the backbone network (16) (the second-tier-mesh operation characteristics) utilizes a second transmission frequency (See Fig. 1A, Col 4, lines 9-11) and these two transmission frequencies may be different (the first frequency bandwidth and the second ... nonoverlapping portions) (See Fig. 1A, Col 10, lines 65-66).

Regarding claim 4, Li further teaches that the head node (14) (at least one first-tier node) of the cluster (12) (said first-tier mesh) and the cluster head nodes (14) (at least one second tier node) of the backbone network (16) (said second-tier mesh) are co-located, the head node (14) of the cluster (12) (the at least one first-tier node co-located with the at least one second-tier node) capable of communicating with a plurality of nodes (10) within the cluster (12) (at least selected others of the first-tier-nodes) and the cluster head nodes (14) of the backbone network (16) (at least one second-tier node

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co-located with the at least one first-tier node) capable of communicating with the head nodes (14) of different clusters within a backbone network (16) (at least selected others of the second-tier nodes) (See Fig. 1A, Col 4, lines 3-14).

Regarding claim 18, Li further teaches that through the network (2) (communications network) the head node (14) (a sink node) processor examines the network connectivity information within the database of the cluster (12) (a mesh network coupled to and built around the sink node) to determine routing paths for communicating the other node (10) within the cluster (12) (capable of determining optimal routes within the network to and from the sink node) (See Fig. 1A, Col 7, lines 29-32)

Regarding claim 19, Li further teaches that the head node (14) (a sink node), the cluster (12) (a mesh network coupled to and built around the sink node) and the other node (10) within the cluster (12) form the first tier of network (2) (See Fig. 1A, Col 4, lines 5-8).

Allowable Subject Matter

4. Claims 5-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

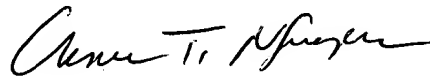
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RKC
rkC

Richard Chang
Patent Examiner
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